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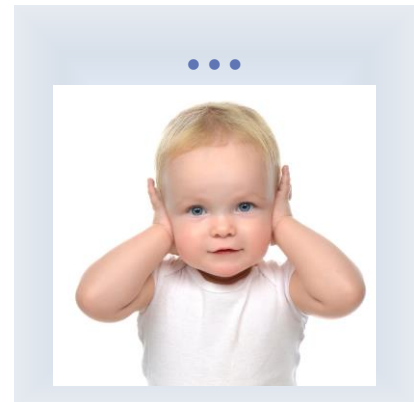
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Introduction

Included in this document are recommended guidelines for newborn hearing screening in South Dakota birthing facilities [both well-baby nursery and neonatal intensive care unit (NICU)].

- Congenital hearing loss of more than 40 deciBels (dB) affects two to three infants per 1,000 live births.¹
- Early Hearing Detection and Intervention (EHDI) is the practice of screening every newborn for hearing loss prior to hospital discharge.
- The National Institutes of Health (NIH) Consensus Development Conference March 1993 recommended that all babies be screened for hearing loss prior to hospital discharge.²
- Federal actions and legislation have established the state's responsibility in developing and maintaining its EHDI program. EHDI programs exist in all 50 states and the District of Columbia.³
- States report annually their results of screenings and follow-up to the Centers for Disease Control (CDC).
- Components of an EHDI program are: screening (initial test for hearing loss), audiologic evaluation (to confirm hearing loss), and Early intervention (medical treatment, early intervention services and family support).²
- The EHDI Act of 2010 states that newborn and infant hearing loss programs should include:
 - Diagnostic services
 - Improvement of recruitment, retention, education, and training of personnel and providers participating in the program.
 - Improvement of family access to early intervention.
 - It also reestablished the state's role in developing and monitoring the efficacy of statewide EHDI programs.
- As of 2016, participation in the South Dakota EHDI program is voluntary for birthing facilities. South Dakota remains one of those states that do not have a state statute for universal newborn hearing screening. Regardless of whether a mandate exists or not, all screening, follow-up, and tracking procedures must be consistent with national established EHDI guidelines.³ This toolkit serves as a resource for personnel and providers to ensure that these minimum guidelines are followed. The screening protocols suggested within this toolkit were developed by local experts, based on nationally accepted guidelines put forth by the Joint Committee on Infant Hearing (JCIH) and in collaboration with the South Dakota EHDI program. Additional resources and support are available from the South Dakota EHDI program to assist with specific issues related to program development and management.



The Role of the Birthing Center in Identifying Children with Hearing Loss

Multiple professionals contribute to the EHDI process. These professionals need to work together and clearly communicate screening results and follow-up steps to parents/guardians and among each other to ensure timely diagnosis of hearing loss and provision of quality follow-up care.

As a healthcare provider or clinicians working in a birthing facility with newborn infants, your role is to:

- Realize that you serve as the entry point for families into the EHDI process.
- Ensure that all newborns are screened for potential hearing loss prior to discharge consistent with the national guidelines.
- Ensure that infants who do not pass their initial newborn hearing screening receive referrals for rescreening and/or audiologic evaluation from a pediatric audiologist for more comprehensive testing.
- Inform families of the results from this screening in a manner that conveys the importance of timely and appropriate follow-up, yet clearly states that a screening does not diagnose the infant with a hearing loss.
- Answer questions (or refer them to someone who can) to provide support for families as they enter this first step of EHDI process.
- Provide parents with education regarding newborn hearing loss, risk factors for hearing loss, the importance of screening and follow-up and early intervention
- Ensure accurate and timely documentation of the screening results and referrals
- Communicate need for referral and rescreen to the infant's primary care provider or pediatrician
- Obtain and document valid and accurate parent contact information for reminders and follow-up post hospital discharge

**Information courtesy of NCHAM*



Importance of Early Detection and Intervention for Hearing Loss

KNOW THE FACTS:

Hearing loss is the most common congenital condition in the United States, affecting 2-3 of every 1,000 children at birth ¹ and another 4,000-6,000 by school age. Hearing loss may result in delayed development in language, speech, and learning ³. Early Hearing Detection and Intervention Programs (EHDI) programs have been developed to maximize language and learning for children who are deaf or hard of hearing. It is important that all medical and educational providers caring for children be familiar with and follow best practice guidelines for identification and timely intervention for hearing loss.



Get Started Right Away

Newborn hearing screenings are the first step in the process of identifying and providing intervention for infants with hearing loss. EHDI programs utilize a more comprehensive approach through their 1-3-6 guidelines: screening no later than one month of age, diagnosis of hearing loss no later than 3 months of age, and entry into early intervention services no later than 6 months of age.²

Auditory input at an early age is needed for speech and language development as well as social and cognitive development.⁴⁻⁶ Early identification is crucial for the development of:

- Spoken language.
- Reading.
- Auditory learning.
- Neural connections to grow throughout the brain.

Children who are identified with hearing loss by six months of age have better developmental outcomes than children identified at an older age.⁶ This means:

- Better expressive and receptive language.
- Higher vocabulary.
- Higher verbal reasoning.

Children with untreated hearing loss are at risk for:

- Isolation and withdrawal from social interactions.
- Adverse effects on social, cognitive, and psychosocial development.
- Learning difficulties, repeating classes, and under performance on educational testing when compared to peers with no hearing loss (even those with minimal hearing loss will face difficulties).
- Being distracted or displaying disruptive behaviors as reported by their teachers.⁷



The benefits of early intervention, which can only be possible with early identification and diagnosis, support the importance of healthcare professionals being aware of the recommended steps to take with a child who may have a hearing loss.

EHDI Program Procedures

The goal of an EHDI program is to identify hearing loss in children at a young age and ensure that intervention is provided early to help all children develop communication and psychosocial abilities commensurate with their cognitive abilities. To meet this larger goal, the Centers for Disease Control (CDC) and other organizations developed a series of sub-goals to enhance the success of the EHDI program.

- **Goal 1:** All newborns will be screened for hearing loss no later than 1 month of age, preferably before hospital discharge.
- **Goal 2:** All infants who did not pass the initial screening will undergo diagnostic audiologic evaluation, with the hearing loss being diagnosed no later than 3 months of age.
- **Goal 3:** All infants identified with a hearing loss will receive appropriate and family centered early intervention services no later than 6 months of age.

Goals 1-3 are commonly referred to as the 1-3-6 timeline. Tables 1 and 2 below, provide a visual representation of the recommended timelines within the EHDI program. Table 1 represents the general 1-3-6 timeline, while Table 2 represents a detailed algorithm for the 1-3-6 timeline including possible outcomes and required referrals at each step.

- **Goal 4:** All infants and children with late onset, progressive or acquired hearing loss will be identified at the earliest possible time.
- **Goal 5:** All infants with hearing loss will have a medical home.
- **Goal 6:** Every state will maintain an EHDI program to track and provide surveillance that will minimize the number of children who are lost to follow-up.
- **Goal 7:** Every state will have a comprehensive system that monitors and evaluates the progress towards the EHDI Goals and Objectives.
- (Additional information about EHDI can be found at [NCHAM](#)).



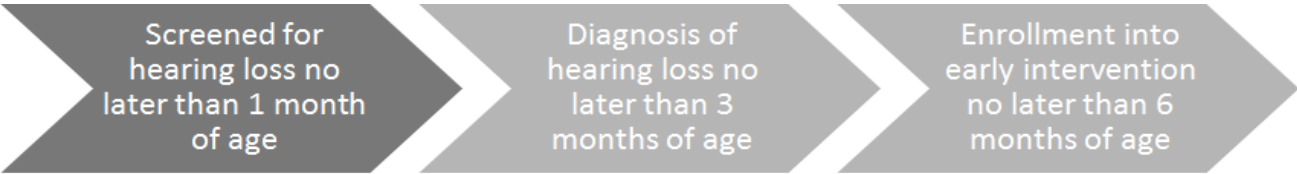


Table 1

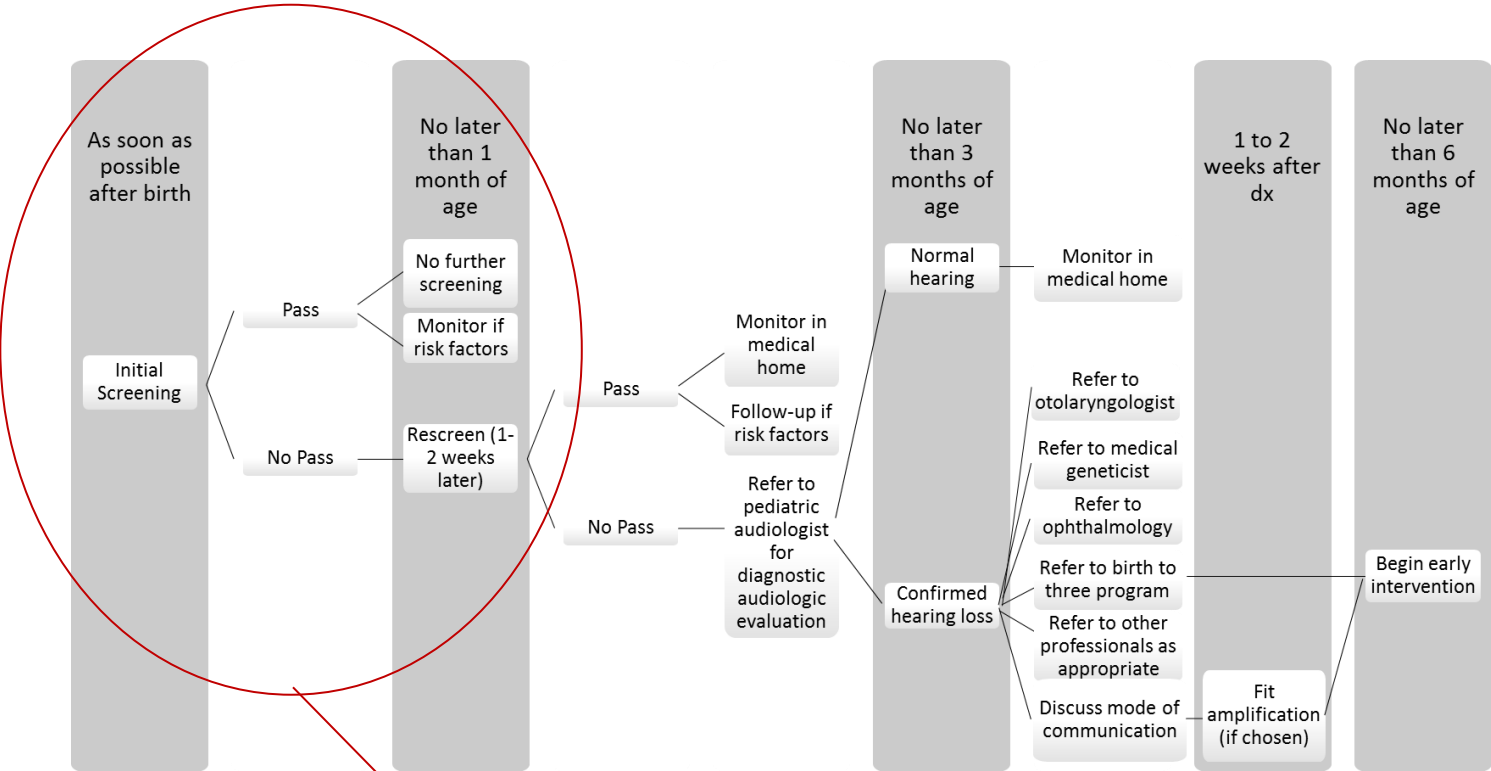


Table 2

This initial step is where hospital staff plays a critical role in the EHDI process.



Hearing Screening in A Birthing Facility: A Bundled Approach

TSST EARRS

A bundled approach to care involves the implementation of a set of evidence-based practices grouped together to improve the process of care. A bundled approach to improve EHDI is represented in the acronym **TSST EARRS**. The next section in this toolkit explains each of the individual practices that are included in the **TSST EARRS** approach.

- Train = T
- Screen = S
- Script = S
- Teach-back = T
- Evaluate = E
- Address = A
- Refer = R
- Remind = R
- Share = S



Train (T) to Screen in the Birthing Facility

Personnel Performing Hearing Screening

Any personnel trained in the screening equipment and procedure can perform newborn hearing screening.

Training Screeners

Training should be comprised of the following:

- Initial training
- Documentation of competency and skill in using screening equipment according to manufacturer's guidelines and facility protocols
- Ongoing quality assurance
- Refresher training every 1-2 years
- HIPAA/Patient confidentiality

Below is a link for an Interactive Web Based Newborn Hearing Screening Training Curriculum by NCHAM:

- <http://www.infanthearing.org/nhstc/index.html>

Hearing Screening Equipment

Two types of technology are available for screening, automated auditory brainstem response (AABR) and otoacoustic emissions (OAE). Either technology can be used to screen infants' hearing in the well-baby nursery. However, AABR is the only acceptable measure for screening infant hearing in the NICU.

Note: Any infant who receives a "refer" result on an ABR screen should never be rescreened with an OAE technology and be "passed" because this infant could at risk for auditory neuropathy spectrum disorder.

Results: Pass/Refer Criteria

Pass/refer criteria and test parameters are preset into the hearing screening equipment, both OAE and AABR, by the manufacturer. Upon completion of a screening, the term "pass" or "refer" will automatically appear on the screen of the test equipment.

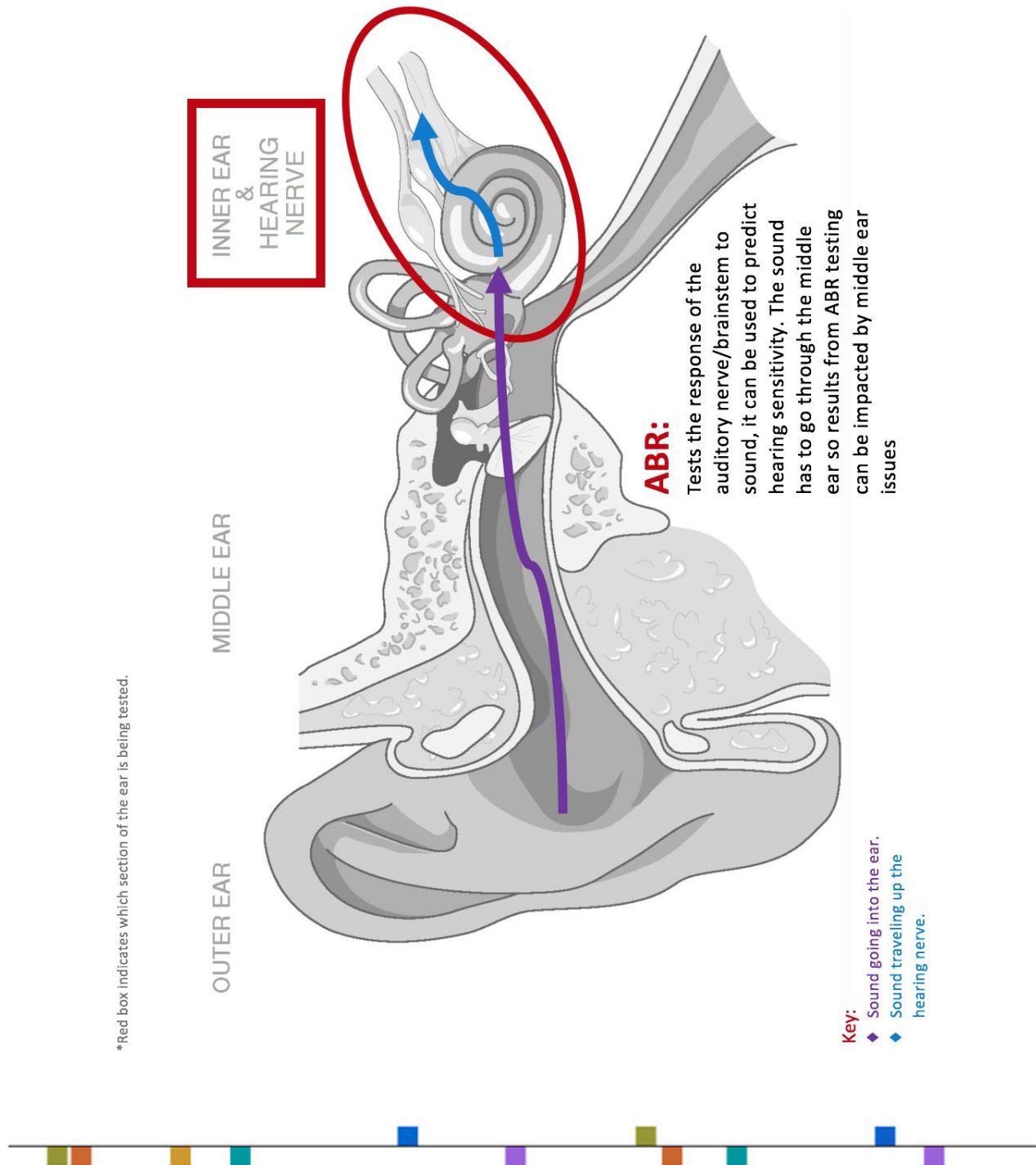
NOTE: The screener should not interpret results at the time of the screen; they should simply report what is indicated on the screen of the test equipment.

The ASHA guidelines on newborn hearing screening state it as such "Standard universal precautions: All procedures must ensure the safety of the patient and clinician and adhere to universal health precautions (e.g. prevention of bodily injury and transmission of infectious disease). Decontamination, cleaning, disinfection, and sterilization of multiple-use equipment before reuses must be carried out according to facility-specific infection control policies and procedures and according to manufacturer's instructions

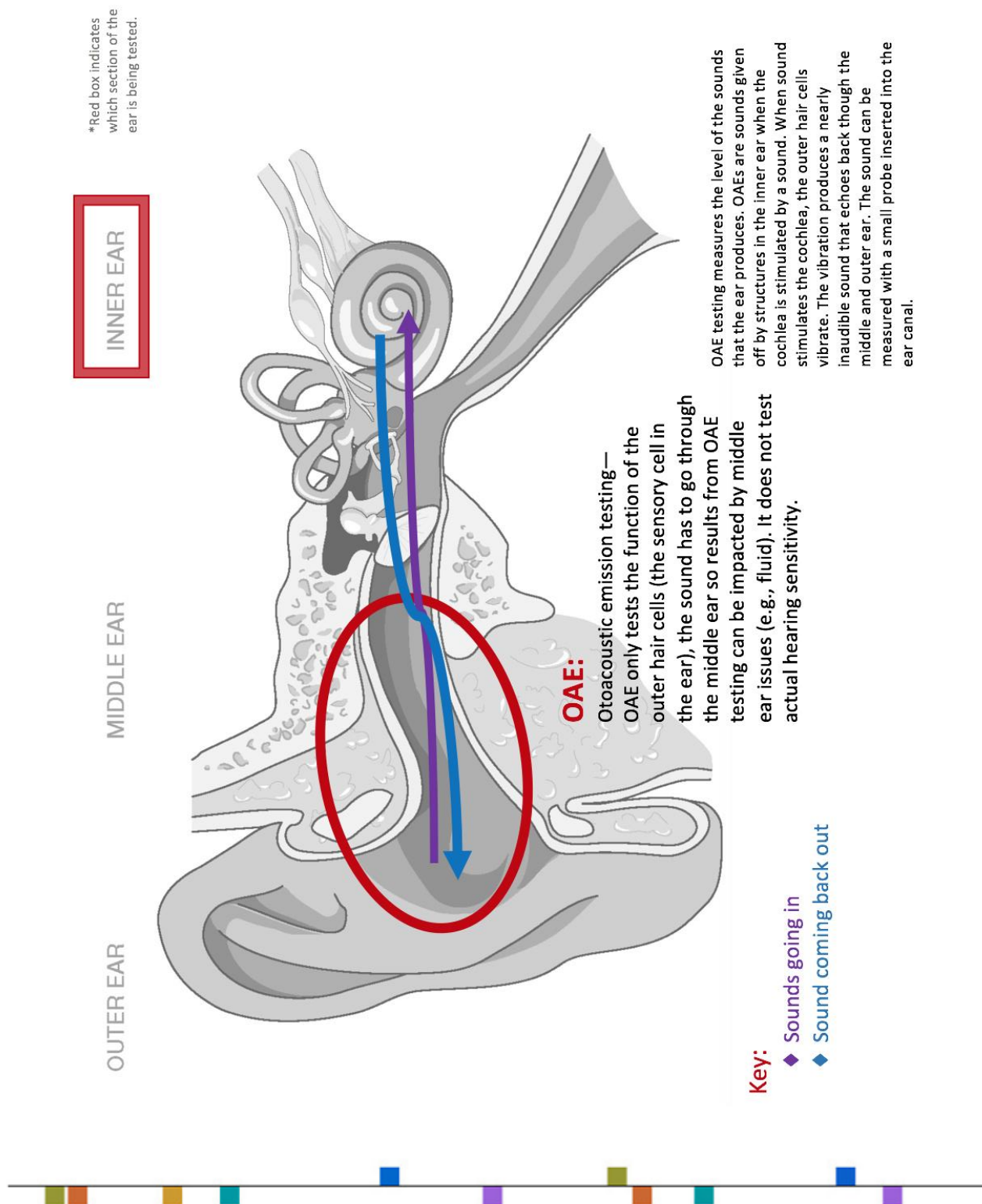


Types of Technology and What They Test

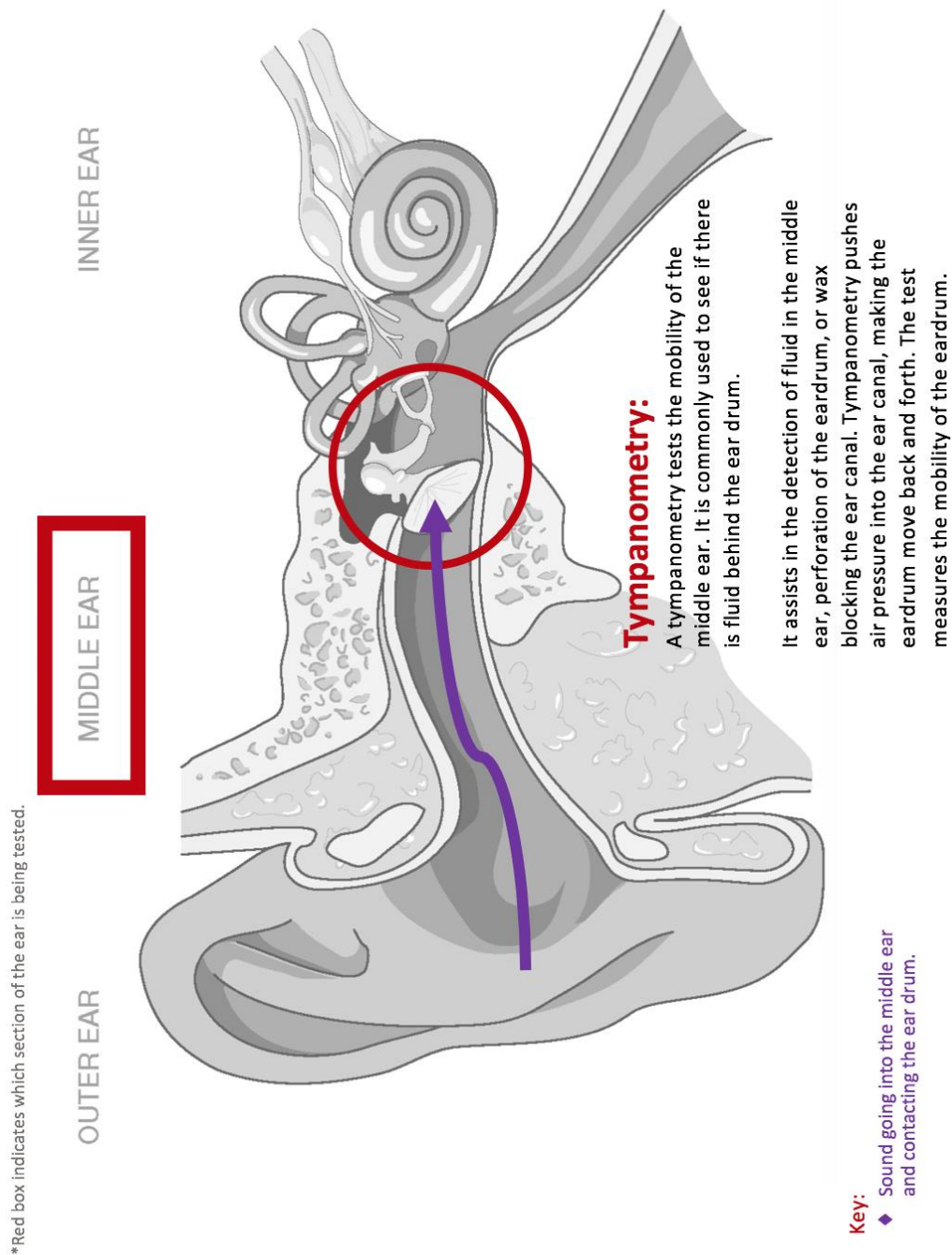
Automated Auditory Brainstem Response (ABR)



Otoacoustic Emission (OAE)



Tympanometry (tomp)



Screen (S): Hearing Screening Procedures and Protocols

Screening requirements differ between well-baby and NICU nursery settings. As such, the recommended screening procedures are presented separately for the well-baby nursery and the NICU nursery.

Screening Protocols for Well-Baby Nursery

Before testing:

- Wash hands and follow hospital's infection control policy for cleaning screening equipment.
- Inform parents/guardians about the hearing screening.
- Review hospital policy regarding the need for a signed consent.

When to perform a hearing screening:

Screen at 24 hours of life. Screen sooner if early discharge dictates.

Where to perform the screening:

Screen in a quiet area.

How to perform the screening:

OAE screen:

- Swaddle baby. Place baby on side or back.
- Select a clean probe tip and insert it onto the probe.
- Pull the ear up and out on baby's ear to open up canal. Insert probe deeply into ear canal.
- Remove your hand from the probe.
- Start the screen when baby is quiet.
- Screen both ears.
- Use a clean probe tip for each baby.

If the baby does not pass on the first try:

- Remove the probe and check for debris. Clean the tip or replace if needed.
- Massage the ear. Rub in front of baby's ear in a circular motion. Move ear forward with one hand while gently tugging upward and outward on back of baby's ear with the other hand.
- Reinsert probe and rescreen.
- Limit screen to 2 attempts per ear.



Repeating the hearing screen:

- Screen both ears before discharge if baby referred the initial screen.
- Limit screen to 2 attempts per ear.

AABR screen:

- Swaddle baby. Place baby on side or back.
- Prep skin for electrodes.
 - Scrub with prep past/cotton swab or 1 and cotton swab or sander. Wipe off excess paste.
 - Refer to equipment manual for placement of electrodes.
 - Apply electrodes. Impedances should be $< 5 \text{ kOhms}$ and within 2-3kOhms of each other.
 - Use paper tape if electrodes don't adhere to the skin.
- Place headphones on ears (blue-left ear, red-right ear).

If baby does not pass on the first try:

- Verify electrodes are connected properly.
- Verify headphones are emitting sound.
- Massage ear.
 - Rub in circular motion in front of baby's ear. Move ear forward with index finger while pulling upward and outward on back of baby's ear with other hand.
- Repeat screen; limit screening session to 2 attempts per ear. Artifact must be low before rescreening.

If artifact is high:

- Wait for baby to fall back asleep.
- Check impedance values; scrub and reapply electrodes if needed.
- Eliminate electrical interference in room by unplugging other equipment if AABR machine plugs into outlet.

Repeating the hearing screen:

- Screen both ears before discharge if baby referred the initial screen.



Screening Protocol for NICU

Technology:

- Infants who are admitted to the NICU for greater than 5 days must undergo an AABR for their hearing screening.
 - OAE is acceptable for infants with a stay of less than 5 days.

Before testing:

- Wash hands and follow hospital's infection control policy for cleaning screening equipment.
- Inform parents/guardians about the hearing screening if present.
- Review hospital policy regarding the need for a signed consent.

When to perform a screening:

- 34 weeks gestation minimum, medically stable and in open crib/warmer.
- Baby should be sleeping.

Where to perform the screening:

Screen in a quiet area.

How to perform an AABR screen:

- Swaddle baby. Place baby on side or back.
- Prep skin for electrodes.
 - Scrub with prep paste/cotton swab or sander. Wipe of excess paste.
 - Refer to equipment manual for placement of eletrodes.
- Apply electrodes. Impedances should be <5 kOhms and within 2-3 kOhms of each other.
 - Use paper tape if electrodes don't adhere to skin.
- Place headphones on ears (blue-left ear, red-right ear).

If the baby does not pass on the first try:

- Verify electrodes are connected properly.
- Verify headphones are emitting a sound.
- Repeat screen; limit screening session to 2 attempts per ear. Artifact must be low before rescreening.

If artifact is high:

- Wait for baby to fall asleep.
- Check impedance values; scrub and reapply electrodes if needed.
- Eliminate electrical interference in room by unplugging other equipment if AABR machine plugs into outlet.

Repeating the hearing screen:

Screen both ears before discharge if baby referred the initial screen or if change in baby's medical status necessitates an additional screen.



Protocol Note: When screening with AABR in the NICU, it is acceptable to rescreen once before discharge. If baby refers the rescreen on one or both ears, schedule an appointment for an outpatient diagnostic ABR with an audiologist. A diagnostic AABR can also be performed before discharge if your facility has the capability to do so.



Script (S) Your Message: Discussing Results of the Hearing Screening with Parents

Both NICU & Well Baby Nursery

Informing parents about the newborn hearing screening

- When entering the room introduce yourself to the parents and inform them you are there to perform a hearing screening on their child.
- When the hearing screening is done in the nursery or in the NICU, the results and other related information should be put in the chart and marked so that the physician or nurse will know that the parents need to be informed.

When the parents ask:

- Why are you testing my baby's hearing?
 - *"It is best to discover a hearing loss in your child as early as possible. Detecting a loss as early as possible will provide an opportunity for early intervention and prevent delay with speech and language development."*
- How long does the hearing screening take?
 - *"Typically 10-15 minutes for OAE, or up to 30 minutes for AABR"*
- Will the screen hurt my baby?
 - *"No, most babies sleep through the screening and the procedure does not cause any harm."*

What to do if the parents refuse a newborn hearing screening:

- Provide them with written material on the importance of the screening.
- Provide them with hearing and language developmental milestones.
- Document refusal of the screening in the chart.
- Ask the PCP for assistance, if necessary, in educating the family about the importance of the screening.



What to say when the child passes (in both ears):

“We have completed your child’s hearing screening and his or her results are a pass. Here is a brochure that contains information on the development of speech and language. It is always important to monitor the progress of your baby’s development because your baby’s hearing can change at any time. If you are ever worried that your child is having difficulty hearing or has a speech and language delay, talk to your child’s doctor and ask for a referral to a pediatric audiologist.”

Although they have passed—encourage the parents to monitor hearing and language developmental milestones and contact their PCP if concerns do arise.

What to say for children at high risk for hearing loss but passes:

“We have completed your child’s newborn hearing screening—He/she has passed! —However, because of some medical concerns, there is a chance that your baby can develop hearing loss. Your child’s hearing is critical in order for “on time” development to occur. Your doctor can help to monitor your baby’s hearing development and inform you when/if your child should have further testing with an Audiologist.”

What to say when the child needs to be rescreened:

“We have attempted to screen your child’s hearing but we need to repeat the screen. Some babies need to be screened more than once. We will recheck your baby before he/she goes home.”

What to say when the child needs to be referred (did not pass TWO screenings) in one or both ears:

“We have completed your child’s hearing screening—the results indicate that further testing needs to be completed. This is just a screen and does not necessarily mean that your child has a hearing loss—there are other possible reasons aside from hearing loss for why your child is referred today, but without further testing we cannot be sure of the reason. We will refer you on to an Audiologist for a full evaluation. The results from today’s screening will be provided to the Audiologist. We will make the appointment with the audiologist today. Please be sure you keep the appointment for further testing.”

What to make sure you include (keep it simple):

- Avoid using words such as “failed” and “deaf”—these words provoke anxiety.
- Reassure the family that there are several reasons why their child might not pass the screening and that further testing will clarify how the infant is hearing— However do not dismiss the results and impress the importance of completing diagnostic testing as soon as possible and no later than 3 months of age.
- Inform them that early detection of hearing loss is important for language development and minimizing the effects of hearing loss on the child’s communication abilities.
- Inform parents that the hospital will schedule follow-up testing prior to the child’s discharge—or—give them the contact information for the audiology clinic and send a referral to the clinic (depending on the hospital/facility’s protocol).



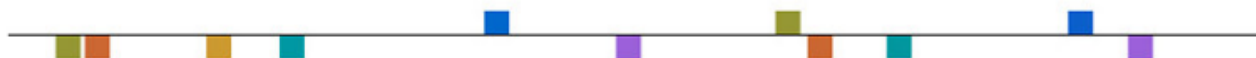
How to answer questions parents may have after they are informed their child needs further testing:

- What do I need to do to complete the testing?
 - *"You will need to maintain the follow up appointment with the audiologist or contact an audiologist from the list we will provide you. You may call the number provided for the audiologist nearest you and make an appointment. Your primary care provider will also receive information regarding your child's needs."*
- What will the Audiologist do?
 - *"They will do a more comprehensive evaluation and might perform an OAE or ABR again. This hearing expert will do more complete tests to determine if there is a hearing loss, how significant the hearing loss is, and what can be done to help them."*
- Will the test be painful for my baby?
 - *No, most babies sleep through the screening and the procedure does not cause any harm."*
- To get this over with as soon as possible, can I see the Audiologist before I leave?
 - *"It is best for your baby to wait until he/she is a little older in order to get a valid and complete diagnostic test."*
- Why can my child receive a hearing screening now but has to wait to have a diagnostic test?
 - *"What we do at the hospital is just a screen. If there is a need for further testing it is best for your child to be older. A few extra weeks will allow for birthing debris to be absorbed and allow for a more accurate evaluation."*
- What if my baby really has a hearing loss?
 - *"Your audiologist will discuss the type and degree of hearing loss with you. From there, if a hearing loss is present, the professional will go through available options of helping your child communicate."*

Some statistics

- 1-3 babies out of 1000 are born with a severe sensorineural hearing loss.
- 3 babies out of 1000 are born with a moderate sensorineural hearing loss.
- The risk of hearing loss is higher for infants who spend time in the NICU compared to well-baby nurseries.
- It is important to screen ALL babies because 50% of babies with hearing loss will have NO KNOWN risk factors or family history of hearing loss.
- Of the babies that refer on for further diagnostic testing, between 5-20% will have hearing loss.

**Script courtesy of NCHAM*



Teach-Back (T) To Ensure Parents Understood What Was Discussed

Teach-back:

Teach-back is asking parents to explain or repeat “in their own words” what they were told by the healthcare provider about their infant’s hearing screening results and care. This method of parent

education is used to check that the healthcare provider explained information clearly and that parents understood what they need to know or do about their infant’s care. As a healthcare provider you may re-explain and check again if needed.

Example

You can say to the family: “I want to be sure I explained your infant’s hearing screening results clearly, can you please tell me in your own words what those results mean and what the plan is to follow-up on those results?”

Do not say: “Did you understand what I said or do you have any questions?”



Evaluate (E) For Other Considerations and Risk Factors

Transfer of infants:

If an infant is to be transferred to a different hospital or unit, conduct the hearing screening prior to the transfer if the baby is stable and communicate the results with the receiving facility. If the screening cannot be performed prior to the transfer, inform the receiving facility and the South Dakota EHDI program.

Births performed by midwives:

There are midwives throughout South Dakota with access to screening equipment who have been trained to perform newborn hearing screening. The South Dakota Department of Health has distributed hearing screening equipment to trained midwives across the state. Midwives who do not have access to hearing screening equipment should educate parents about the importance of newborn hearing screening and set up a hearing screening appointment with another provider before the infant is one month of age. Newborn hearing screening is available to families throughout South Dakota through the South Dakota School for the Deaf.

Readmitted Infants:

Infants readmitted to the hospital during the first month of life with conditions associated with potential hearing loss (e.g., hyperbilirubinemia, meningitis, sepsis) need to have a hearing screen repeated prior to discharge. In many cases this screening should be an AABR. In cases of significantly elevated bilirubin, infants should be referred for audiological assessment to include ABR measures after discharge.

Follow-up for infants with risk factors for hearing loss:

Infants with risk factors for hearing loss should be monitored by their primary care physician in the medical home. Infants with a risk factor for hearing loss should have at least one diagnostic audiology assessment by 30 months of age. Infants with risk factors associated with late onset or progressive loss (e.g. CMV) should be followed more frequently. See page 18 for a list of risk factors.



Risk Factors for Hearing Loss

Risk indicators are associated with delayed onset or progressive hearing loss in children.

A family history of permanent childhood hearing loss	<ul style="list-style-type: none"> • Family member(s) born with hearing loss. • Family member(s) with hearing loss identified in childhood that was not caused by a medical condition (e.g. ear infections). • Family member(s) with known cause of hearing loss (e.g. rubella, meningitis, noise exposure, age) are excluded.
NICU stay of more than 5 days or with any of the following regardless of length of stay	<ul style="list-style-type: none"> • ECMO • Assisted ventilation • Exposure to ototoxic medication (e.g. aminoglycosides or loop diuretics). <ul style="list-style-type: none"> ◦ Aminoglycosides can damage hair cells in the inner ear resulting in sensorineural hearing loss-- common used include: <ul style="list-style-type: none"> • Streptomycin, neomycin, kanamycin, amikacin, viomycin, vancomycin, gentamicin, and tobramycin.
Exposure to in-utero infection	<ul style="list-style-type: none"> • Toxoplasmosis: infected during or just before pregnancy-- especially during the 1st trimester. • Group B strep (GBS): sick infant with positive GBS culture. • Syphilis: infected during pregnancy. • Rubella: infected primarily during the 1st trimester. • Cytomegalovirus (CMV): can be transmitted through placenta, birth canal, or postnatally through breast milk. • Herpes Simplex Virus (HSV).
Hyperbilirubinemia	Requiring exchange transfusion.
Ear malformation/Craniofacial anomalies	Involving pinna, ear canal, ear tags, ear pits, and temporal bone anomalies.
Syndromes commonly associated with hearing loss	Down, Usher, Wardenburg, and Neurofibromatosis.
Head Trauma	Specifically ones that require hospitalization.
Neurodegenerative disorders	
Chemotherapy	
Meningitis	Particularly bacterial meningitis.
Parental concerns	Concerns regarding hearing, speech, language or development delays.
<i>*Risk factors courtesy of NCHAM</i>	



Obtain A Valid and Reliable Address (A) and Contact Information from Parents

Ask parents to provide a reliable and valid address to use for follow-up reminders. It is best to ask parent(s)/caregivers to provide an additional address that is permanent and can be used as a back-up in case they move or there is an issue with reaching them on the primary address that they provided.

“Refer” Infant for Follow-up or Further

If the result of the initial screen is “Refer,” ensure referral of parent(s)/caregiver(s) to a Medical Home for further evaluation

Obtain and Authorization to Share Information with other state programs if applicable per your facility protocols

Remind (R) Parents of the Need for a Second Screen or Referral if Applicable

Work closely with the Social worker or Discharge Planner at your unit to ensure that parents receive timely reminders

Ask parents about their preferred method for sending reminders (i.e. text, phone call, letter, etc.)

Share (S) and Document Information

Share need for follow-up screen with medical home and with primary care and other healthcare providers if applicable i.e. discharge planner

Document screening information in the electronic medical record

Include time, date, type of screen (OAE or ABR), and results

Document parent education, referral information if applicable, and preferred method for sending reminders (i.e. text, phone call, letter, etc.).



Resources for Parents:

Websites:

[My Baby's Hearing](#)

<http://www.babyhearing.org/hearingamplification/NewbornScreening/index.asp>

[Healthy Children](#)

<https://www.healthychildren.org/English/ages-stages/baby/Pages/Purpose-of-Newborn-Hearing-Screening.aspx>

[National Center for Hearing Assessment and Management](#)

<http://www.infanthearing.org/screening/>

[Centers for Disease Control](#)

<http://www.cdc.gov/features/newbornhearing/>

[American-Speech Language-Hearing Association](#)

<http://www.asha.org/public/hearing/Hearing-Testing/>

[Oregon Health Authority](#)

<http://public.health.oregon.gov/HealthyPeopleFamilies/Babies/HealthScreening/HearingScreening/Pages/index.aspx>

[Pediatric Audiology Link to Services](#)

<http://www.ehdipals.org/>

Online Brochures:

[*Newborn Hearing Screening: What, When, & Why*](#)

<https://doh.sd.gov/documents/Family/Newborn.pdf>

[*Hearing Screening Pass*](#)

<http://www.dhcs.ca.gov/services/nhsp/Documents/Brochures/Pub834PF.pdf>

[*Hearing Screening Referral*](#)

<http://www.dhcs.ca.gov/services/nhsp/Documents/Brochures/Pub845PF.pdf>

[*Universal Newborn Hearing Screening \(UNHS\)*](#)

http://www.infanthearing.org/statematerials/description/OH_A%20Sound%20Beginning...%20%20Parent%20Information.pdf

Online Video:

[Child Hearing Test](#) <http://www.agbell.org/Document.aspx?id=1142>



Speech and Language Developmental Milestones

If your baby is this old...

...He or she should:

Birth- 3 months

- Be startled by loud noises
- Be soothed by familiar voices
- Make vowel sounds (ooh, ahh)
- Squeal or coo
- Giggle or Laugh

3-6 months

- Make lots of sounds
- Enjoy babbling
- Make high and low sounds
- Like toys that make noise or sing
- Turn his or her head to follow sounds

6-9 months

- Responds to his or her name
- Play with sounds by repeating them
- Understands “no” and “bye”
- Says “da-da” or “ma-ma”

9-12 months

- Recognize emotions in speech (Responds differently to happy/angry voices)
- Babble in response to voices
- Have 2-3 new words
- Stop when he/she hears “no”

12-18 months

- Be able to identify people, parts of the body (e.g. head, foot), and toys
- Name what he/she wants
- Talk in sentences with a few words that people can understand
- Use gestures with speech (e.g. hand waving)
- Bounce to music
- Repeat some words

18-24 months

- Follow simple directions
- Speak in two-word phrases
- Have a vocabulary of about 20 words
- Recognize other sounds (e.g. cars, dogs, vacuum, doorbell)

**Developmental milestones courtesy of South Dakota Department of Health
Newborn Hearing Screening Program*



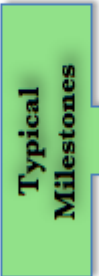
Pediatric Audiology Diagnostic Sites in South Dakota

Audiology Services in South Dakota										
Audiology Clinic	Age by Months	Screening			Diagnostic Assessments					
		*ABR	*OAE	*Tymps	*ABR - Tonebursts/Click	*ABR - Bone	*High Frequency Tympanometry	*TEOE	*DPOE	*VRA
								*Behavioral Observation Audiometry	*Sedation to perform ABR	*Fitting/Dispensing for Hearing Aids
Audiology Clinics										
Avera McKennan Hospital Audiology Clinic Plaza 2 (605) 322-5039	0-6 months	•	•	•	•	•	•	•	•	•
1301 South Cliff Avenue Sioux Falls, SD 57105	7-12 months	•	•	•	•	•	•	•	•	•
Avera Medical Group Ear Nose and Throat Yankton (605) 665-6820	0-6 months	•	•	•	•	•	•	•	•	•
409 Summit Suite 3200 Yankton, SD 57078	7-12 months	•	•	•	•	•	•	•	•	•
Ear, Nose and Throat Associates, P.C. (605) 665-0062	0-6 months		•	•			•	•	•	•
2525 Fox Run Parkway, Suite 101 Yankton, SD 57078	7-12 months		•	•			•	•	•	•
Midwest Ear, Nose and Throat; Hearing Center (605) 336-3503	0-6 months		•	•			•	•	•	•
2315 West 57th Street Sioux Falls, SD 57108	7-12 months		•	•			•	•	•	•
Professional Hearing Services, Inc. (605) 882-1591	0-6 months		•	•			•	•	•	•
405 18th Avenue NE Watertown, SD 57201	7-12 months		•	•			•	•	•	•
Rapid City Medical Center (605) 342-3280	0-6 months	•	•		•	•		•	•	•
101 East Minnesota Street Rapid City, SD 57701	7-12 months	•	•		•	•		•	•	•
Regional Medical Clinic (605) 755-5671	0-6 months		•					•	•	•
2805 5th Street Rapid City, SD 57701	7-12 months		•					•	•	•
Sanford ENT (605) 328-8200	0-6 months	•	•	•	•	•	•	•	•	•
1310 West 22nd Street Sioux Falls, SD 57105	7-12 months	•	•	•	•	•	•	•	•	•
Schwab Audiology, Inc. (605)725-4455	0-6 months		•	•			•	•	•	•
3001 6th Avenue SE Suite 2 Aberdeen, SD 57401	7-12 months		•	•			•	•	•	•
South Dakota School for the Deaf (605) 367-5200	0-6 months	•	•	•			•	•	•	•
2001 East 8th Street Sioux Falls, SD 57103	7-12 months	•	•	•			•	•	•	•
South Dakota School for the Deaf - WEST RIVER CLINIC (605) 791-7839	0-6 months	•	•	•	•	•	•	•	•	•
2138 Jackson Blvd Rapid City, SD 57702	7-12 months	•	•	•	•	•	•	•	•	•
University of South Dakota - Speech and Hearing Clinic (605) 677-5474	0-6 months	•	•	•	•	•	•	•	•	•
414 East Clark Street Vermillion, SD 57069	7-12 months	•	•	•	•	•	•	•	•	•
Yankton Medical Clinic (605) 665-1722	0-6 months		•	•			•	•	•	•
1104 West 8th Street Yankton, SD 57078	7-12 months		•	•			•	•	•	•
Facilities shaded in green offer comprehensive pediatric audiologic diagnostic testing										
*Definitions ABR - Auditory Brainstem Response OAE - Otoacoustic Emissions Tymps - Tympanometry ABR Toneburst/Click - Auditory Brainstem Response toneburst and equipment click stimulus. ABR Bone - Auditory Brainstem Response Bone Conduction High Frequency Tympanometry TEOE - Transient Evoked Otoacoustic Emissions DPOE - Distortion Product Otoacoustic Emissions VRA - Visual Reinforcement Audiometry										


The chart below can be provided to parents to help them track their progress through the EHDI steps.

South Dakota Newborn Hearing Screening Checklist

This checklist is for parents along with professionals to follow EHDI's expected guidelines for screening an infant along with developmental milestones the parent can observe. The visual organization chart allows parents to keep track of their future appointments.



**Typical
Milestones**



BIRTH
Newborn Hearing Screening
Date: ____/____/____

Results:
☐ Pass: Your baby does not require and additional follow up
☐ Rescreen/Refer: Your child did not pass the hearing screen. An outpatient hearing screen has been scheduled for:
Date: ____/____/____ Time: ____ Location: ____

**Before 1 Month
Outpatient Hearing
Screen**

Results:
☐ Pass:
Your baby does not require additional follow up, track typical developmental milestones.
☐ Did not pass:
A diagnostic evaluation with a pediatric audiologist has been scheduled for:
Date: ____/____/____
Time: ____
Location: ____

**Before 3 Months
Evaluation**

Results:
☐ If your baby passes evaluation, your baby does not require any additional follow up.
☐ If your baby has an identified hearing loss, the next steps are:
Audiologic/Medical testing evaluation
Date: ____/____/____
Time: ____
Location: ____
Any additional referrals: genetic evaluation, ENT, ophthalmology.

**Before 6 Months
Early Intervention**

☐ If your baby has a diagnosed hearing loss, enroll in Early Intervention program.
Program: ____
Date: ____/____/____
Time: ____
☐ Learn about communication options
☐ Regular visits to a Pediatric Audiologist
**Children who are involved in Early Intervention before six months are more likely to have age appropriate skills.*

All results should be sent to primary care provider.

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